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IS 12168-2 (1987): Screw Driver Bits for the Use with Ratchet Screw Drivers, Part 2: For Cross Recessed Head Screws [PGD 5: Assembly Hand Tools]



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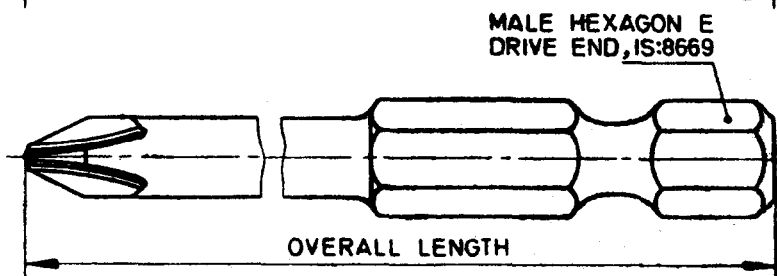
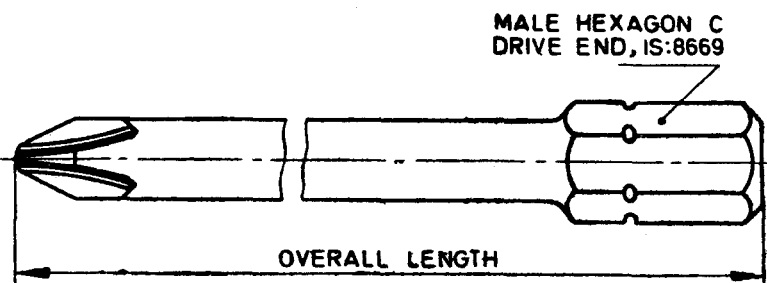
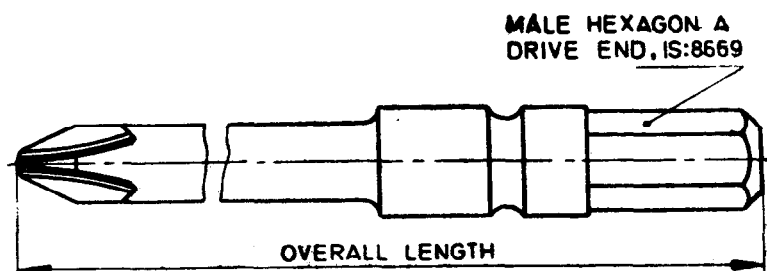


Indian Standard

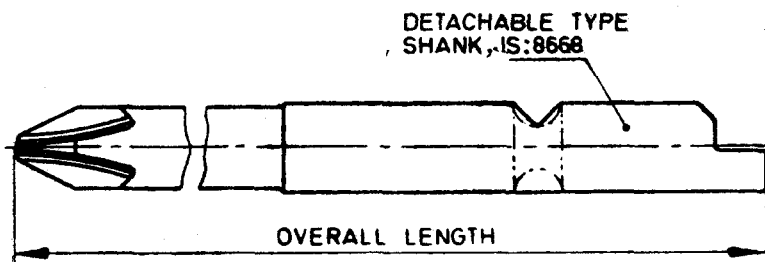
SPECIFICATION FOR SCREW DRIVER BITS FOR THE USE WITH RATCHET SCREW DRIVERS PART 2 FOR CROSS RECESSED HEAD SCREWS

1. Scope — Covers dimensions and other requirements of screw drivers bits for use with ratchet screw drivers, used for cross recessed head screws.

2. Types



TYPE I



TYPE II

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3. Dimensions

3.1 Screw Driver Points — The point dimensions and its shape shall be in accordance with IS : 844 (Part 3)-1979 'Specification for screw drivers: Part 3 Dimensions for screw drivers for recessed head screws (second revision)'.

3.2 Shank

3.2.1 Dimensions and tolerances on male hexagon drive end (Type I) shank shall be in accordance with IS : 8669-1977 'Dimensions for hexagon drive ends for power tools'.

3.2.2 Dimensions and tolerances on shanks (Type II) shall be in accordance with IS : 8668-1984 'Dimensions for spiral ratchet screw driver shanks (first revision)'.

3.3 Overall Length of Bits

3.3.1 The length of the bits for nominal point sizes 0 and 1 shall be 76.0 ± 3.0 mm.

3.3.2 The length of the bits for nominal point sizes 2, 3 and 4 shall be 95.0 ± 3.0 mm.

4. Material — Suitable steels, meeting the requirements laid down in 5 and 8. Some of the suitable steel for manufacture of bits are steel designation T50Cr4V2 conforming to IS : 3749-1978 'Specification for tool and die steels for cold work (first revision)' and steel designation 50C4 conforming to IS : 1570 (Part 2)-1979 'Schedules for wrought steels: Part 2 Carbon steels (unalloyed steels) (first revision)'.

5. Hardness — The bits shall be heat treated in its full length to achieve a hardness value between 48 and 58 HRC.

6. Designation — The bit shall be designated with its commonly used name, application, nominal size of point, type of bit, nominal size of driving end and number of this Indian Standard.

Example:

Screw driver bit for recessed head screw of nominal point size 2, with male hexagon drive end (Type I), having nominal dimension of male hexagon end 6.3 shall be designated as:

Screw Driver Bit RHS 2-1-6.3, IS : 12168 (Part 2).

7. Workmanship and Finish

7.1 The bits shall be free from cracks, burrs, fins and flashes produced during forging/rolling.

7.2 The bits shall be protected against rust by plating with nickel, chromium or zinc; or by any other suitable process.

8. Torque Test — The bits shall be fixed to the ratchet screw drivers conforming to IS : 12166-1987 'Specification for ratchet screw drivers', or spiral ratchet screw drivers conforming to IS : 12167-1987 'Specification for spiral ratchet screw drivers'. For bits of Type I (with male hexagon drive ends), adaptors conforming to IS : 12153-1987 'Specification for adaptors for hexagonal insert bits for use with ratchet screw drivers', shall be used. The screw drivers fixed with these bits shall be subjected to testing torque indicated in Table 1. The dimensions for a suitable torque applying test plate are also given in Table 1. The screw driver points shall be made to set in the test plate and the testing torque shall be applied without any jerks or impact. It shall be gradually increased till the specified testing torque is reached. At the end of the test, there shall be no permanent deformation or other defects, such as cracks, etc.

9. Marking — The bits shall be legibly marked with the manufacturer's name/initials or registered trade-mark and designation of the bit.

9.1 Standard Marking — Details available with the Bureau of Indian Standards.

10. Sampling

10.1 In a consignment, all the screw driver bits of same type and size manufactured from the same material under similar conditions of production shall be grouped together to constitute a lot.

10.2 For ascertaining the conformity of the lot, the procedure for sampling and inspection as given in IS : 2500 (Part 1)-1973 'Sampling inspection tables: Part 1 Inspection by attributes and by count of defects (first revision)', shall be followed. The type of sampling plan, inspection level and acceptable quality level (AQL) to be followed for various characteristics shall be as given in 10.2.1 and 10.2.2.

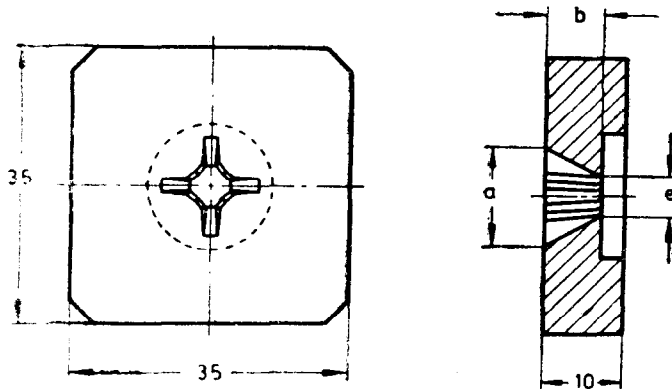
10.2.1 For ascertaining the conformity of the lot with respect to dimensions, designation and workmanship and finish, a single sampling plan with Inspection Level IV and AQL of 1.5 percent as given in Tables 1 and 2 of IS : 2500 (Part 1)-1973 shall be followed.

10.2.2 For ascertaining the conformity of the lot with respect to hardness and torque test, a single sampling plan with Inspection Level I and AQL of 1.5 percent as given in Tables 1 and 2 of IS : 2500 (Part 1)-1973, shall be followed.

TABLE 1 DIMENSIONS FOR TEST PLATE AND TESTING TORQUE REQUIREMENTS

(Clause 8)

All dimensions in millimetres.



Nominal Point Size	<i>a</i>		<i>b</i>	<i>e</i>	Testing Torque Nm <i>Min</i>
	<i>Max</i>	<i>Min</i>			
0	2.34	2.24	1.47	0.81	1.4
1	3.66	3.56	2.34	1.27	3.8
2	5.97	5.87	3.63	2.29	10.4
3	9.85	9.75	5.99	3.81	38.0
4	12.39	12.29	7.26	5.08	58.0

Note—The recess shall be cold stamped with a master punch. Hardness of the plate shall be 58 HRC, *Min*.

EXPLANATORY NOTE

These types of bits are generally used with ratchet screw drivers for tightening/loosening of cross recessed head screws. For Type I bits, adaptors conforming to IS : 12153-1987, are used whereas Type II bits can directly be used in these screw drivers. These may also be used with pneumatically operated tools.

For screw driver bits for slotted head screws, reference may be made to Part 1 of this standard.